Ownership matrix

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TABLE OF CONTENTS

1.0 PURPOSE AND SCOPE

(7.1.1, 7.1.2, 7.1.3, 7.1.4,7.1.5)

This procedure establishes a process for evaluating technical adequacy of facility structures, systems, and components (SSCs). Technical evaluations are typically requested by operations or engineering management to evaluate some aspect of facility operation, but they do not address operability of the system. For example, technical evaluations are requested to determine a SSCs compliance with the technical bases, to evaluate off-normal operating conditions, or to determine if current testing practices satisfy Technical Safety Requirements (TSRs). Technical evaluations may also be required to support commercial grade dedication of piece parts and services or safety classification upgrades (Ref TFC-PLN-02) of installed general service equipment not procured from an ASME NQA-1 approved supplier (see TFC-ENG-DESIGN-C-15). The purpose of the technical evaluation of a piece part is to identify the critical characteristics for acceptance. The purpose of the technical evaluation of services is to determine if the failure or improper performance of the service could have an adverse impact on the safety function of equipment, materials or the facility operations, and selection of the Supplier's processes and controls. The purpose of the technical evaluation to support a safety classification upgrade of installed general service equipment is to ensure that the critical characteristics for the mechanical items from the applicable Functions and Requirements Evaluation Document (FRED) (see TFC-ENG-DESIGN-C-45) or the Instrumentation items from the applicable SIS Safety Requirements Evaluation Document (SRED) (see TFC-ENG-DESIGN-P-44) were verified as being met. If one or more critical characteristics for acceptance cannot be verified, the commercial grade item cannot be upgraded for use as a safety significant item.

This procedure applies to Tank Operations Contractor (TOC) facility SSCs.

Use of this procedure is required by HNF-IP-1266, "Tank Farms Operations Administrative Controls," and HNF-SD-WM-TSR-006, "Tank Farm Technical Safety Requirements;" and/or by RPP-13033, "Tank Farms Documented Safety Analysis," and HNF-15279, "242A Evaporator Technical Safety Requirements;" and/or HNF-14755, "242A Evaporator Documented Safety Analysis" in the implementation of the following TSRs:

<u>Tank Farms</u>

- LCO 3.2, "SST Steady-State Flammable Gas Control"
- LCO 3.3, "SST Steady-State Flammable Gas Control for 241-B-203 and 241-B-204"
- LCO 3.4, "DST Induced Gas Release Event Flammable Gas Control"
- LCO 3.5, "DST Annulus Flammable Gas Control"
- LCO 3.6, "DCRT Steady-State Flammable Gas Control"
- LCO 3.7, "DST Flammable Gas Monitoring Control"
- AC 5.8.2, "Flammable Gas Control for WASTE-INTRUDING EQUIPMENT"
- AC 5.8.4, "Low-Level Radioactive, Mixed and TRU Waste Packaging Flammable Gas Controls"
- AC 5.8.5, "Waste Transfer System Overpressure Flow Transient Protection"

- AC 5.8.8, "Waste Transfer System Freeze Protection"
- AC 5.9.2, "Ignition Controls"

242A

- AC 5.8.1, "Flammable Gas Controls for Waste Feed Transfer Piping, Waste Slurry Transfer Piping and C-A-1 Vessel Drain (Dump) Piping [242A]"

2.0 IMPLEMENTATION

This procedure is effective on the date shown in the header.

3.0 RESPONSIBILITIES

3.1 Originating Engineer

Develops, reviews, and issues the technical evaluation.

3.2 Reviewer

Reviews the evaluation to ensure that references and requirements are properly incorporated, the engineering approach is sound and technically rigorous, and the recommendations or conclusions are supported by the evaluation.

3.3 Engineering Manager

Designates originating engineers and reviewers to perform technical evaluations, and reviews and approves technical evaluations.

Additional responsibilities are contained with Section 4.0.

4.0 PROCEDURE

The procedure for writing technical evaluations shall consist of receiving a request and writing the evaluation using the report format identified in the Technical Evaluation site form (A-6005-465) and the Technical Evaluation Instructions (A-6005-465i). The technical evaluation shall be limited to a technical evaluation of a SSC, as requested by operations or engineering management, and will typically omit any discussion of operability of the system with respect to TSR compliance or environmental permitting requirements. Technical evaluations required to support commercial grade dedication on safety significant piece parts and services shall meet the criteria for determining critical characteristics of piece parts and services included in TFC-ENG-DESIGN-C-15, Attachment A (piece parts) and Attachment B (services). The purpose of the technical evaluation to support a safety classification upgrade of installed general service equipment is to ensure that the critical characteristics for the mechanical items from the applicable Functions and Requirements Evaluation Document (FRED) (see TFC-ENG-DESIGN-C-45) or the Instrumentation items from the applicable SIS Safety Requirements Evaluation Document (SRED) (see TFC-ENG-DESIGN-P-44) were verified as being met. If one or more critical characteristics for acceptance cannot be verified, the commercial grade item cannot be upgraded for use as a safety significant item. Technical evaluations used to address a Red Arrow shall include, where required, the controls needed to be clearly identified for inclusion in operating procedures.

4.1 Performing a Technical Evaluation

The time to complete a technical evaluation is determined by the responsible Engineering manager with concurrence of the individual requesting it.

A technical evaluation cannot be used to make plant changes or modifications.

NOTE 1: When providing recommendations in the Technical Evaluation, they shall be limited to the specific SSC/ proposed activity evaluated in the Technical Evaluation, and the consequences of not implementing the recommendations shall be provided (e.g., Engineering equipment evaluations not possible, invalidation of the Technical Evaluation, etc.).

NOTE 2: For revisions to Technical Evaluations, show changes in bold (if form allows), shading, or change bar to identify what part of the document was changed.

Originating Engineer

1. Obtain a unique number for the evaluation from the Hanford Document Numbering System (HDNS) (i.e., RPP-TE-XXXXX).

2. Prepare the Technical Evaluation in accordance with site form A-6005-465 (TECHNICAL EVALUATION) and Technical Evaluation Instructions (A-6005-465i).

3. For technical evaluations of safety classification upgrades of installed general service equipment not procured from an ASME NQA-1 approved supplier, ensure the technical evaluation includes the following:

   a. As appropriate: (1) for mechanical items, review the applicable FRED (see TFC-ENG-DESIGN-C-45); (2) for instruments, review the applicable SIS Safety Requirements Evaluation Document (SRED) (see TFC-ENG-DESIGN-P-44). The review is to identify the safety function, the functional requirements, and the postulated, credible failure mechanism(s) of the upgraded item.

   b. Determine what properties or attributes are essential for the upgraded item's form, fit or function (important/key characteristics for design).

   c. Determine what sub-set of the properties or attributes determined in "b" above, that once verified, will provide reasonable assurance the upgraded item will meet its intended safety function (i.e. Critical Characteristics for Acceptance) and the basis.

   d. Ensure critical characteristic selection for acceptance address the following:

      - Identifiable and measurable attributes or variables appropriate for the safety function.

- Criteria related to the location of the item in the facility or criteria addressing the most severe location of the item in the facility, unless controls are in place to prevent usage in undesignated locations.

e. Determine the following:

- Acceptance criteria and allowable tolerances, where applicable, for each of the critical characteristics for acceptance.

- The method(s) of acceptance that will be used to verify the critical characteristics for acceptance will include selecting one or more of the methods discussed in TFC-ENG-DESIGN-C-15.

- The applicable testing procedure to be used if testing is a selected verification method.

f. Document the critical characteristics, the methods of acceptance, and the acceptance criteria and allowable tolerances on a Quality Assurance Inspection Plan (QAIP) form (A-6003-946) in accordance with TFC-ESHQ-Q_INSP-C-01)

g. If testing is required, reference or attach the existing or newly prepared test procedure to the Quality Assurance Inspection Plan (QAIP) form (A-6003-946).

h. Attach a copy of the completed Quality Assurance Inspection Plan (QAIP) form, and associated inspection and test records to the technical evaluation.

4. Obtain a review of the technical evaluation.

5. Complete a Process Hazard Analysis (PrHA) Screening in accordance with TFC-ENG-DESIGN-C-47.

6. Obtain an unreviewed safety question (USQ) evaluation for all technical evaluations in accordance with the requirements stated in TFC-ENG-SB-C-03.

   NOTE: Per TFC-ENG-SB-C-03, only qualified USQ evaluators are authorized to apply "N/A" to documents that are outside the scope of the USQ process.

7. Review any recommendations with the responsible manager to determine if Problem Evaluation Requests (PERs) need to be submitted in accordance with TFC-ESHQ-Q_C-C-01, to ensure the recommendations are adequately considered and dispositioned based on the consequences of not implementing them.

	8.	If PERs are submitted, add the PER number references to the recommendations in the document.
Reviewer	9.	Compare the technical evaluation against the requirements given in this procedure.
	10.	Independently assess the conclusions drawn in the Technical Evaluation.
	11.	Provide any comments.
	12.	Resolve comments.
	13.	Sign the technical evaluation and forward it to the applicable Design Authority (DA) for review and approval. NOTE 1: Technical Evaluations for Waste Leak Path Evaluation require the additional review and approval of the Waste Transfer Confinement Review Board (WTCRB) in accordance with TFC-ENG-FACSUP-C-26. NOTE 2: Technical evaluations required to support commercial grade dedication or safety classification upgrades of installed general service equipment not procured from an ASME NQA-1 approved supplier shall be reviewed and approved by the Procurement Engineering Lead or designee.
Design Authority	14.	Review and approve the technical evaluation, and return the Technical Evaluation to the Originating Engineer.
Originating Engineer	15.	For Technical Evaluation(s) for "Qualification and/or Use of Existing Data" (Ref. TFC-ENG-DESIGN-C-62), forward the Technical Evaluations to the Managers (Engineering and Quality Assurance) for review and approval.
Managers (Engineering and Quality Assurance)	16.	For Technical Evaluation(s) for "Qualification and/or Use of Existing Data" (Ref. TFC-ENG-DESIGN-C-62), evaluate the Technical Evaluation recommendation and disposition the data appropriately; i.e., if the data set(s) is determined to be "qualified", they will update the data qualification status from "existing" to "qualified;" or if the data set(s) is determined to be "not qualified," a decision should be made and documented regarding the need to collect more data.
	17.	Document the disposition of the determination in step 16 and the Managers (Engineering and Quality Assurance); document signatures in the "Comments" Section of the Technical Evaluation.
	18.	Review and approve the Technical Evaluation and return the Technical Evaluation to the Originating Engineer.
Originating Engineer	19.	Forward the Technical Evaluation to the applicable Engineering Manager for review and approval.

Engineering Manager	20.	Ensure that PERs are submitted and the PER numbers are referenced for recommendations included in the document, if PERs are needed to be submitted to ensure the recommendations are adequately considered and dispositioned.
	21.	Review and approve the Technical Evaluation, and return the Technical Evaluation to the Originating Engineer.
Originating Engineer	22.	Provide the completed Technical Evaluation form to a Document Service Center for release in accordance with TFC-ENG-DESIGN-C-25. NOTE: If the technical evaluation relies on required actions from another organization (e.g., Radcon, IH, etc.), include the applicable organizations on distribution of the Technical Evaluation.
	23.	Generate schedule logic to implement recommendations, as required, and include in the Engineering Plan Of The Week (POW) or applicable Facility/Project Schedule.
	24.	Deliver a copy of the technical evaluation to the individual who requested it.
	25.	For technical evaluations of piece parts and services, the evaluation shall become part of the appropriate CGD package(s) (see TFC-ENG-DESIGN-C-15).
	26.	For technical evaluations of a piece part to support the CGD Program, initiate and process an ECN in accordance with TFC-ENG-DESIGN-C-06. a. If mechanical, revise the applicable FRED (see TFC-ENG-DESIGN-C-45) to incorporate the technical evaluations used as a basis for CGD packages with regard to the piece parts identified critical characteristics for acceptance. b. If instrumentation items, revise the SIS Safety Requirements Evaluation Document (SRED) (see TFC ENG-DESIGN-P-44) to incorporate the technical evaluation used as a basis for CGD packages with regard to the instrumentation items' identified critical characteristics for acceptance.
	27.	Place a copy of the technical evaluation in the system notebook (see TFC-ENG-FACSUP-D-01.2).

4.2 Cancelling Technical Evaluations

There may be instances where an approved Technical Evaluation is no longer required or has become obsolete. In these cases, the Technical Evaluation shall be cancelled.

Originating Engineer	1.	Process Technical Evaluation cancellations as a revision to the Technical Evaluation, noting the reason for the cancellation in the Executive Summary/Recommendations Section.
	2.	Identify all Technical Evaluation cancellations revisions by a numerical designator (e.g., 1 ,2, 3, etc.)

5.0 DEFINITIONS

Degraded condition. A condition that occurs when an SSC has a loss of quality or functional capability.

Nonconforming condition. A failure to meet requirements, design criteria/specifications, and/or regulatory commitments. Examples of nonconforming conditions include:

- A failure to conform to one or more applicable codes or standards specified in the authorization basis
- Equipment does not meet authorization basis requirements or description
- Operating experience or engineering reviews demonstrate a design inadequacy
- Documentation required is not available or is deficient.

6.0 RECORDS

The following records are generated during the performance of the procedure:

- Technical Evaluation (site form A-6005-465).

The record custodian identified in the Company Records Inventory and Disposition Schedule (RIDS) is responsible for record retention in accordance with TFC-BSM-IRM_DC-C-02.

7.0 SOURCES

7.1 Requirements

1. HNF-IP-1266, “Tank Farms Operations Administrative Controls.”
2. HNF-SD-WM-TSR-006, “Tank Farm Technical Safety Requirements.”
3. HNF-14755, “242-A Evaporator Documented Safety Analysis.”
4. RPP-13033, “Tank Farms Documented Safety Analysis.
5. HNF-15279, “242-A Evaporator Technical Safety Requirements.”

7.2 References

1. TFC-BSM-IRM_DC-C-02, “Records Management.”
2. TFC-ESHQ-Q_C-C-01, “Problem Evaluation Request.”

3. TFC-ESHQ-Q_INSP-C-01, “Control of Inspections.”

4. TFC-ENG-DESIGN-C-06, “Engineering Change Control.”

5. TFC-ENG-DESIGN-C-15, “Commercial Grade Dedication.”

6. TFC-ENG-DESIGN-C-25, “Technical Document Control.”

7. TFC-ENG-DESIGN-C-45, “Control Development Process for Safety Significant Structures, Systems, and Components.”

8. TFC-ENG-DESIGN-C-47, “Process Hazard Analysis.”

9. TFC-ENG-DESIGN-C-62, “Qualification and/or Use of Existing Data.”

10. TFC-ENG-DESIGN-P-44, “Safety Requirements Evaluation Document (SRED).”

11. TFC-ENG-FACSUP-C-26, “Waste leak Evaluations.”

12. TFC-ENG-SB-C-03, “Unreviewed Safety Question Process.”